Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)	
	)	
WTB Seeks Comment on the Impact	)	WT Docket No. 21-195
of the Global Semiconductor Shortage	)	
on the U.S. Communications Sector	)	

COMMENTS OF USTELECOM—THE BROADBAND ASSOCIATION

USTelecom – The Broadband Association ("USTelecom")[1] submits these comments in response to the Federal Communications Commission ("Commission") Wireless Telecommunications Bureau's ("WTB") Public Notice in the above-captioned proceeding.[2] USTelecom shares the Commission's concerns regarding the impacts of the continuing global shortage of semiconductors. As the Administration recently observed in its 100-Day Review of semiconductor manufacturing[3] under Executive Order 14017, "America's Supply Chains", "the semiconductor-based integrated circuit is the "DNA" of technology and has transformed essentially all segments of the economy . . . ."[4] Semiconductors (of varying size and complexity) are used at virtually every level of the Information Communications Technology ("ICT") ecosystem, including 5G and next generation broadband networks, as well as in the

[1] USTelecom is the premier trade association representing service providers and suppliers for the telecom industry. Its diverse member base ranges from large publicly traded communications corporations to small companies and cooperatives—all providing advanced communications services to both urban and rural markets.

[2] *Wireless Telecommunications Bureau Seeks Comment on the Impact of the Global Semiconductor Shortage on the U.S. Communications Sector*, WT Docket No. 21-195, Public Notice (WTB 2021) ("*WTB Public Notice*"), https://docs.fcc.gov/public/attachments/DA-21-550A1.pdf.

[3] The White House, Building Resilient Supply Chains, Revitalizing American Manufacturing, and Fostering Broad-Based Growth 21 (June 8, 2021), https://www.whitehouse.gov/wp-content/uploads/2021/06/100-day-supply-chain-review-report.pdf.

[4] *Id.* at 22.

administration, management, and operational control of those networks. We welcome this opportunity to highlight the real impacts USTelecom members are currently experiencing and potential continuing effects due to chipset shortages.

Even before the COVID-19 pandemic dramatically increased demands on broadband networks for remote work, remote learning, telehealth, and other services, the ICT infrastructure and mobile phone markets collectively accounted for 50 percent of total global semiconductor sales.[5] Since then, the communications industry's dependence on semiconductors has only grown as people and institutions depend on digital connectivity more than ever before.

The immediate consequences of the shortage for USTelecom members include extended and uncertain lead times from suppliers and extended transportation timelines—leading to rising costs of deploying communications equipment and devices. In the bigger picture, as the Commission states, reliable access to semiconductors is essential for "the nation's continued advancement in next-generation technologies like fifth-generation (5G) wireless service" and "communications capabilities that are key to the nation's national and economic security."[6]

There are a number of steps the Commission can take to help address current challenges. Specifically, the Commission should be flexible if providers need additional time to meet Connect America Fund ("CAF"), Rural Digital Opportunity Fund ("RDOF") or any other Universal Service Fund broadband deployment commitments, as well as any mandatory remove and replace obligations for covered equipment that are negatively impacted due to chip shortages. Additionally, the Commission should work in consultation and partnership with the

[5] Antonio Varas, Raj Varadarajan, Jimmy Goodrich & Falan Yinug, Boston Consulting Group, *Strengthening the Global Semiconductor Supply Chain in an Uncertain Era* (2021), https://www.semiconductors.org/wp-content/uploads/2021/05/BCG-x-SIA-Strengthening-the-Global-Semiconductor-Value-Chain-April-2021_1.pdf.

[6] *WTB Public Notice* at 2.

telecommunications industry on strategies that ensure supplier diversity, economic security, and U.S. leadership in the deployment of next-generation technologies. Finally, the Commission should provide a voice within the federal government to ensure polices are not adopted that favor specific industries' efforts to obtain semiconductors, such as calls by the automotive industry to prioritize their chipset needs.[7]

I. The Global Semiconductor Shortage is Impacting Lead Times and Costs in the Communications Sector, with No Clear End in Sight.

The global semiconductor shortage, combined with residual impacts from the COVID-19 pandemic, is significantly affecting the telecommunications supply chain and the broader ICT supply chain. USTelecom members are seeing extended and uncertain lead times from suppliers, as well as shipping delays. The main impacts of these developments on USTelecom members include:

- Broadband providers have had to change their processes, such as releasing purchase orders much further in advance (e.g., 6-15 months, instead of 1-3 months in advance), which can lead to delays if sufficient advance orders are not anticipated.
- Broadband providers face earlier product forecasts with less flexibility to make changes since vendors are currently requiring purchase orders to be placed six months in advance and are expected to increase that timeline to a year in advance.
- Broadband providers are forced to carry more inventory, resulting in increased inventory storage costs, as they are required to order so far in advance.

[7] *See, e.g.*, Comments of the Alliance for Automotive Innovation, Docket No. 210310-0052 (filed April 5, 2021) (recommending that a portion of *CHIPS for America Act* funding be used to support production of auto grade chips).

- Broadband providers have had to acquire alternate, more expensive products, which in some cases has required more expensive transportation (resulting in an approximate four times increase in shipping costs).
- Broadband providers have had to delay customer turn up in some cases. In addition, providers find themselves having to seek multiple customer-premises equipment ("CPE") sources to mitigate impacts to their customers. This drives providers to incur additional costs, which may be passed onto consumers.

While the Commission is interested in how long the current shortage is expected to last,[8] the more concerning aspect of the present situation is that there is no clear end in sight. Given the global semiconductor industry's inability to quickly expand capacity, these shortages are expected to last for a considerable amount of time, and may become more acute before the market adjusts.

II. The COVID-19 Pandemic Compounds Chipset Supply Restrictions and Demonstrates the Need for Supplier Diversity.

The chipset supply restrictions impact has been compounded by the COVID-19 pandemic. While the pandemic and the resulting work/learn from home reality drove demand up for devices and increased broadband capacity, global public health restrictions also impacted the production of semiconductors. For various reasons, we have seen companies stockpiling chips, which has contributed to the shortage. A patchwork of global policy and regional conditions continues to play a role in increasing demand for, and reducing supply of, semiconductors.

These developments have placed a spotlight on the risks associated with the concentration of semiconductor manufacturing in specific parts of the world. A recent study

[8] *WTB Public Notice* at 2.

found that 75% of semiconductor manufacturing capacity is currently concentrated in giant foundries in Asia.[9] Notwithstanding U.S. leadership in semiconductor design and engineering, only about 11% of global semiconductor manufacturing belongs to the United States.[10] Since 2001, supplier diversity for leading-edge semiconductors has decreased radically, from 30 companies to only three companies: TSMC (Taiwan), Samsung (South Korea), and Intel (United States).[11] The excessive concentration of suppliers of key materials, ranging from silicon wafers and specialty chemicals to rare earth minerals used for chip manufacturing, can pose long-term strategic risks to U.S. leadership and innovation.

III. Semiconductors are Essential to Continued Broadband Expansion in the United States.

USTelecom appreciates the Commission's inquiry into the effects of the semiconductor shortage on consumers and the public interest – particularly on enabling remote work, remote learning, telehealth, and other services that have moved online during the pandemic.[12] The vital importance of these services coupled with the limited options to increase supply in the short term argues against any policies that favor specific industries, at the expense of the other sectors – including the communications sector. As noted previously, semiconductors of varying size and complexity are used at virtually every level of the ICT ecosystem.

USTelecom members provide services that have allowed society to adapt and innovate throughout the pandemic, and the supply of semiconductors has been key to keeping America connected. Semiconductors have powered smartphones, tablets, internet routers, TVs, IoT

[9] Varas, et al., *supra* note 3.

[10] Congressional Research Service, Semiconductors: U.S. Industry, Global Competition, and Federal Policy, (October 26, 2020), https://crsreports.congress.gov/product/pdf/R/R46581.

[11] BofA Global Research, Global Semiconductors: Semiconductor Primer 2020, at 4 (Dec.7, 2020) ("BofA Global Research, Global Semiconductors").

[12] *WTB Public Notice* at 3.

devices, and nationwide 5G and fiber networks, which have been relied upon to work, learn, and connect with others from home. Keeping America connected, broadband providers have sustained work and school throughout a dramatic, record-breaking increase in traffic associated with remote options. Some large providers measured a 40 percent increase, year-over-year, in petabytes of data which crosses the network, in no small part due to telehealth visits, digital classrooms, and all other forms of remote work.[13] Robust connectivity enables greater access to critical information, such as monitoring and distribution of COVID-19 vaccines and its subsequent need for coordination with various state and local organizations. A healthy and predictable supply chain is necessary to support these activities.

Though remote-learning was meant to be temporary, about one-fifth of school systems have considered or have planned to continue this method of learning.[14] And with many business considering a more flexible hybrid work environment as the pandemic subsides, robust networks remain vital.

IV. The Commission Should Be Flexible Concerning any Timelines Impacted by the Global Semiconductor Shortage.

As a result of the uncertainty in timelines for various components of broadband infrastructure dependent on semiconductors and the unexpected increased costs for providers , the Commission should be flexible if providers are unable to meet deployment deadlines as a direct result of semiconductor shortages. Industry is taking a number of important steps to minimize impacts of shortages, including improving understandings of gaps by semiconductor

[13] *See, e.g.,* Press Release, AT&T, *Our Communities Depend on a Resilient and Secure Global Supply Chain for Semiconductors* (May 17, 2021), https://policyforum.att.com/2021/05/our-communities-depend-on-a-resilient-and-secure-global-supply-chain-for-semiconductors.

[14] Heather L. Schwartz, David Grant, Melissa Kay Diliberti, Gerald P. Hunter, Claude Messan Setodji, RAND *Remote Learning Is Here to Stay: Results from the First American School District Panel Survey* (2020), https://www.rand.org/pubs/research_reports/RRA956-1.html.

type; adapting planning horizons as lead times stretch; improving communication and information sharing with key supply partners; and engaging in public policy dialogue to help shape long-term solutions. However, none of these efforts can solve entirely for the current shortages, which is why Commission flexibility would help ensure the health of the U.S. communications sector.

Regarding steps to prevent similar supply chain challenges in the future, the Commission and its federal partners should support policies that improve U.S. domestic manufacturing capacity, and strive for greater market and geographic diversity of suppliers. It is for this reason that USTelecom supports funding for the CHIPS for America Act[15] to incentivize production of semiconductors in the United States. The post-COVID economic recovery requires investments and innovation, especially in next-generation networks and technologies that need semiconductors and crucial components. A smart approach to these challenges will not only improve the resiliency of the U.S. communications sector supply chain, but also create new markets for U.S. exports, ensuring the economic security of the United States and long-term competitiveness in the global economy.

Conclusion

USTelecom appreciates this opportunity to provide insights regarding the impacts of the continuing global shortage of semiconductors on the U.S. communications sector and urges the Commission to consider the actions discussed in these comments.

[15] H.R. 7178 116th Cong. (2021).

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